REMARKS

With this Amendment, Applicant amends claims 1, 12, 16, 17, 21, 22 and 23 and adds new claims 24-29. No new matter is added. Therefore, claims 1-10, 12-29 are all the claims currently pending in the application. Based on the following remarks, Applicant requests reconsideration of the application and allowance of the claims.

I. Rejection of Claims 1-9, 16-17 & 21-23 Under 35 U.S.C. § 102(e)

Claims 1-9, 16-17 and 21-23 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Kadous (U.S. Patent No. 6,636,568; hereinafter "Kadous")

For at least the foregoing reasons, Applicant submits that Kadous does not teach or suggest all of the features of claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 1 and its dependent claims 2-10 and 12-15.

Claim 1 requires "An apparatus comprising:" *inter alia*, "*a first mapper* adapted to receive first representations of a first portion of communication data, said first mapper for mapping the first representations of the first portion of the communication data into first mapped values according to a first mapping scheme; and *a second mapper* adapted to receive second representations of a second portion of the communication data, said second mapper for mapping the second representations of the communication data into second mapped values according to a second mapping scheme, *the second mapping scheme exhibiting a mapping property that differs with the first mapping scheme...*" Applicant respectfully submits that Kadous does not teach or suggest at least the above features of claim 1. In rejecting claim 1, the Examiner relies on column 16, lines 1-52 and FIG. 5 of Kadous for the proposition that Kadous discloses the above features of claim 1. Applicant respectfully disagrees.

In contrast to claim 1, column 16, lines 1-52 of Kadous, at best, discloses that "coded and interleaved bits from each channel interleaver 514 are provided to a respective symbol mapping element 516 which maps the[] bits to form modulation symbols" and explains that the "particular modulation scheme to be implemented by each symbol mapping element 516 is determined by the modulation control provided by controller 130." Column 16, lines 1-52 further explains that each symbol mapping element 516 "maps ... corresponding to the selected modulation scheme (e.g., QPSK, M-PSK, M-QAM, or some other modulation scheme)." (emphasis added) Column

4, lines 4-10 also, at best, explains that controller 130 may utilize controls in order to "modulate[] (i.e., symbol mapped) based on a particular modulation scheme (e.g., BPSK, QSPK, M-PSK, or M-QAM) selected for that data stream to provide modulation symbols." (emphasis added) Nowhere in the cited portion or any other portion of Kadous is there any teaching or suggestion relating to each of the symbol mapping elements 516a, 516t exhibiting differing mapping properties, as required by claim 1. Rather, the cited portion and indeed all of Kadous, at best, discloses that the controller 130 may select the same modulation scheme (e.g. QPSK) for both of the symbol mapping elements 516a, 516t from among various modulation schemes (i.e., "BPSK, QSPK, M-PSK, or M-QAM")[1] in order to modulate interleaved bits provided by channel interleavers 514a, 514t, respectively.

Given that Kadous, at best, discloses that the symbol mapping elements 516a, 516t may use the same modulation scheme that may be selected from various modulation schemes, Kadous is incapable of teaching or suggesting that the symbol mapping element 516a has a mapping scheme which exhibits a mapping property that differs with the symbol mapping element 516t, as required by claim 1.

Claim 1 also recites "the *first mapper transmits* the first mapped values to *a first antenna transducer* among a plurality of antenna transducers and wherein the *second mapper transmits* the second mapped values to a *second antenna transducer* among the plurality of antenna transducers ..." As can be seen in FIG. 5 of Kadous, in contrast to claim 1, the symbol mapping elements 516a, 516t, at best, transmit modulation symbols to an inverse Fourier transform (IFFT) units 522a, 522t of a TX MIMO processor 120a. (Col. 16, lines 53-58) The IFFT units 522a, 522t convert the modulation symbols to OFDM symbols and sends the OFDM symbols to cyclic prefix generators 524a, 524t and the "[c]yclic prefix generator[s] then provide[] a stream of transmission symbols to an associated transmitter" 122a, 122t. Given that the symbol mapping elements 516a, 516t do not transmit mapped values to first and second antenna transducers, and instead disclose that the symbol mapping elements 516a, 516t sends modulation symbols to IFFT units 522a, 522t, Kadous is incapable of teaching or suggesting that a "*first mapper transmits* the first mapped values to *a first antenna transducer* among a plurality of antenna transducers and

[1] Col. 4, line 7 of Kadous.

... the *second mapper transmits* the second mapped values to a *second antenna transducer* among the plurality of antenna transducers," as required by claim 1.

For at least the foregoing reasons, Applicant submits that Kadous does not teach or suggest all of the features of claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 1 and its dependent claims 2-10 and 12-15.

Since claim 16 and 21 contain features that are analogous to, though not necessarily coextensive with, the features recited in claim 1, Applicant respectfully submits that claim 16 and its dependent claims 17-20 as well as claim 21 and its dependent claims 22-23 are patentable at least for reasons analogous to those submitted for claim 1.

With further regard to claim 5, claim 5 recites independently patentable subject matter given that Kadous fails to teach or suggest "elements of the first set of mapped *values differing in value* with elements of the second set of mapped values," "the first set of mapped values and the second set of mapped values ... respectively, are formed of *mutually-exclusive elements*," as required by claim 5 in combination with other recitations of the claims. In rejecting claim 5, the Examiner suggests that column 16, lines 36-52 of Kadous discloses the features of claim 5. (See pgs. 5 & 6 of the Office Action) Applicant respectfully disagrees. Nowhere in the cited portion or any other portion of the combination is there any mention, teaching or suggestion relating to a first mapper (to the extent that the Examiner is suggesting that the symbol mapping element 516a corresponds to the claimed first mapper) that maps a first set of mapped values and a second mapper (to the extent that the Examiner is suggesting that the symbol mapping element 516t corresponds to the claimed second mapper) that maps a second set of mapped values where values of the first set of mapped values and the second set of mapped values *differ and are formed of mutually exclusive elements*, as claimed. The cited portion, i.e., column 16, lines 36-52 of Kadous, at best, discloses that "[e]ach symbol mapping element 516 maps each non-binary symbol to a specific point in a signal constellation. Contrary to the Examiner's general assertion the cited portion, and indeed all portions, of Kadous are simply altogether silent regarding the makeup and content of any of the values generated from the symbol mapping elements 516a, 516t and as known to skilled artisans it certainly is not necessarily the case that the symbol mapping elements 516a generate values that differ and that are mutually exclusive to each other,

as required by claim 5. The Examiner is giving the reference credit for more than it actually teaches. Contrary to the Examiner's assertion in the Office Action,[2] even assuming *arguendo* that the Kadous discloses differing mapping schemes, such disclosure does not demonstrate that each element of a first set of mapped values differs in value with elements of a second set of mapped values. Some of the elements (e.g., one element) of the first set of mapped values could have the same value as some (e.g. one element) elements in the second set of mapped values. As known to skilled artisans, "[t]he first and second mapping schemes [must be] ... *selected* to exhibit *differing* properties and ... are *selected* such that the constellation sets of the separate mapping schemes comprise *dissimilar* symbol points" which "differ in symbol values." (See pgs. 6 and 13 of the specification) Based on at least the foregoing, Applicant respectfully requests reconsideration and withdrawal of the § 102(e) rejection of claim 5 for this additional reason.

II. Rejection of Claim 10 Under 35 U.S.C. § 103(a)

Claim 10 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kadous in view of Li et al. (U.S. Patent No. 7,068,628; hereinafter "Li"). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Kadous is deficient vis-à-vis independent claim 1 and Li does no compensate for the deficiencies of Kadous. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claim 10.

III. New Claims

Applicant has added new claims 24-29 in order to more fully cover various aspects of Applicant's invention as disclosed in the specification. In addition to their respective dependencies from claims 1, 16 and 21, Applicant respectfully submits that claims 24-29 should be allowable because the cited references do not teach or suggest the recitations of these claims. Support for new claims 24-29 can be found at least on pages 6 and 13 of the specification.

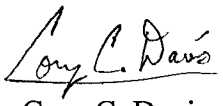
[2] See pg. 6 of the Office Action.

IV. Conclusion

In view of the foregoing remarks, Applicant respectfully submits that all of the claims of the present application are in condition for allowance. It is respectfully requested that a Notice of Allowance be issued in due course. Examiner Dean is encouraged to contact Applicant's undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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